

REMARKS

Claims 1-26 and 29 are pending in this application. Claim 1 is the sole independent claim. By this Amendment, claims 1, 5, 9, 10, 25 and 26 are amended. No new matter is added.

Specification

On page 7, the sentence "Figure 1 and Figure show the front face and rear face of a transducer array," should be "Figure 1 and Figure 2 show...". This sentence has been amended accordingly, and therefore, Applicants request withdrawal of the objection to the specification.

Claim Objections

Claim 25 is objected to as being dependent upon the wrong claim (claim 1 instead of claim 22). Claim 25 has been amended to depend from claim 22, and therefore, Applicants request withdrawal of the objection to claim 25.

Rejections Under 35 U.S.C. §112

Claim 26 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection is respectfully traversed.

Because claim 26 is amended to address the rejection, withdrawal of the rejection is requested.

Rejections Under 35 U.S.C. §103

Claims 1, 12, 17 and 29 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,635,054 to Girault et al. ("Girault") in view of U.S.

Patent Publication 2002/0195345 to Bentsen et al. ("Bentsen"). This rejection is respectfully traversed.

In rejecting the claims, it is alleged that Girault alone discloses a transducer array having a flexible metal/isolator composite composed of a metal layer and an isolator layer with a permanent connection between the metal surface and the isolator surface. However, according to Girault, the microdisc array (shown for example in Figs. 1 and 2) comprises a substrate 1 of PVC, a perforated sheet 2 of a non-conducting material (i.e., polyester), with a layer 3 of a conducting material applied to non-conducting material 2 (the conducting material being carbon paste). Thus, contrary to the allegation in the Office Action, Girault fails to disclose or suggest a transducer array, containing a flexible metal/isolator composite composed of a metal layer and an isolator layer with a permanent connection between the metal surface and the isolator surface.

Moreover, as there is no metal layer disclosed in Girault, the reference also fails to disclose or suggest a metal layer being in the form of a self-supporting metal substrate and the metal layer being structured in such a manner that metal areas are electrically isolated from one another.

Because Girault fails to disclose or suggest a metal layer as in the claims, the combination of references cannot render the claims obvious. As such, the rejection should be withdrawn.

In addition to the above deficiencies, it is admitted that Girault fails to disclose or suggest the structured metal areas are contactable with, on a side facing away from or opposite the sensor surface, discrete electrodes, the individual metal areas each including associated individual measurement electrodes on the one hand and at least one reference electrode on the other hand.

In an effort to overcome the admitted deficiencies, it is alleged that Bentsen discloses "structured metal areas contactable with, one a side facing away from or opposite the sensor surface" at paragraph [0017] and Fig. 4D. It is further alleged that it would have been obvious to one of skill in the art at the time of the present invention to modify microelectrode of Girault according to the teachings of Bentsen "to enable the first surface bearing the exposed electrodes to be directly laminated to a fluid handling architecture that directs the fluid sample to the electrode array."

According to Bentsen, the APEX circuit 10 may be manufactured by depositing metal layer 30 on a surface of a flexible polymeric substrate 32 (FIG. 4A). The metal layer 30 is subsequently patterned and etched in order to form a plurality of metallic traces 34 (FIG. 4B). After metal traces 34 have been formed on flexible polymeric substrate 32, portions of substrate 32 are removed or "milled" away from each of the electrodes to form vias 36 over each electrode 37 (FIG. 4C), thereby exposing bare metal. The protrusion 39 ensures better conductivity by increasing the surface area of electrode 37, and also provides for better adhesion of the metal trace 34 by forming lip 41 that slightly overlaps and interlocks with substrate 32. After via 36 has been formed, and protrusion 39 on electrode 37 created, hydrophilic matrix 38 is applied, which coats electrode 37 and optionally fills via 36, as shown in FIG. 4E. Finally, appropriately defined microlocation 40 of matrix 38 is doped with an appropriate receptor capable of determining a chemical signature of various test-species, as shown in FIG. 3E.

Thus, it is at best unclear how one of skill in the art could modify the device of Girault according to the teachings of Bentsen. For example, there is no metal layer in Girault on which to perform the steps disclosed in Bentsen. Moreover, it is at best unclear what possible adverse effects the hydrophilic matrix may have on the device of

Girault if deposited over the electrode as taught by Bentsen. Applicants respectfully remind the Examiner that the totality of the prior art must be considered.¹ "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art."²

Because the combination of references fails to render the claims obvious, withdrawal of the rejection is requested.

Claims 1-21 and 29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bentsen in view of Girault. This rejection is respectfully traversed.

In rejecting the claims, it is alleged that Bentsen alone discloses a transducer array, containing a flexible metal/isolator composite composed of a metal layer and an isolator layer with a permanent connection between the metal surface and the isolator surface, the metal layer being in the form of a self-supporting metal substrate. Applicants disagree.

According to Bentsen, the substrate is a flexible polymeric substrate 32. The substrate 32 may be a polyimide, a poly(methylmethacrylate), polycarbonates, polyolefins, polyamides, polyvinyl chloride, and polytetrafluoroethylene, polyesters, or epoxies. Other ingredients which may be incorporated into the substrate 32 which may include plasticizers, toughening agents, pigments, fillers, stabilizers, antioxidants, flow agents, bodying agents, leveling agents, colorants, binders, fungicides, bactericides, surfactants, glass and ceramic beads, and reinforcing

¹ *In re Hedges*, 783, F.2d 1038, 228 USPQ 686 (Fed. Cir. 1986);

² *In re Wesslau*, 353 F.2d 383, 241, 147 USPQ 391, 393

materials such as woven and non-woven webs of organic and inorganic fiber, provided that none of the added ingredients interfere with the chemical or biochemical processes for which the APEX array is intended. Thus, there is no disclosure in Bentsen of a flexible metal/isolator composite composed of a metal layer and an isolator layer with a permanent connection between the metal surface and the isolator surface, the metal layer being in the form of a self-supporting metal substrate as alleged in the Office Action.

Moreover, as discussed above, Girault also fails to disclose or suggest a metal layer being in the form of a self-supporting metal substrate. As such, Girault does not overcome the deficiencies of Bentsen.

Because Bentsen fails to disclose or suggest the features as alleged in the Office Action, and because Girault does not disclose or the features missing from Bentsen, the combination of references cannot render the claims obvious. As such, the rejection should be withdrawn.

Claims 22-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Bentsen in view of Girault as applied to claims 1-21 above, and further in view of U.S. Patent Publication 2005/0173246 to Hodges et al. ("Hodges"). This rejection is respectfully traversed.

Claims 22-26 are allowable for their dependency on independent claim 1 for the reasons discussed above, as well as for the additional features recited therein. As such, withdrawal of the rejection is requested.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of the pending claims in connection with the present application is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. §1.17; particularly, extension of time fees.

Respectfully submitted,

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